CLAIMS

What is claimed is:

1-16. (canceled)

17. (currently amended) The implantable brachytherapy source of Claim 42, ~~1 in which the capsule is made of mechanically strong, biocompatible,~~ wherein said plastic material ~~such as~~is high density polyethylene or polyetheretherketone (PEEK).

18. (currently amended) The implantable brachytherapy source of Claim 42, ~~1 in which the capsule is made from~~ wherein said plastic material is medical grade PEEK.

19. (canceled).

20. (currently amended) The implantable brachytherapy source of Claim 42, wherein said functional unit has ~~Biodegradable spacers with~~ 1, 2, 3, 4, or 6 ~~connecting ends which, with~~ball joints adapted to be affixed to a socket of said biocompatible capsules to form ~~of Claim 4, make possible~~ a linear strands or ~~of sources and spacers, and~~ a planar arrays ~~of~~ having triangular, square, and hexagonal patterns ~~of sources and spacers~~ comprising said biocompatible capsule and said functional unit.

21. (currently amended) The implantable brachytherapy source of Claim 42, wherein said functional unit further comprises a drug delivery system or coating on said functional unit that ~~spacers of Claim 5 that are designed to~~ controllably releases an ~~medicines of several types, including~~ anti-inflammatory drugs, a local anesthetics, an antibiotics, an anti-cancer adjuvants, ~~or~~ a radiation enhancing drugs, or other medication..

22. (currently amended) The implantable brachytherapy source ~~spacers~~ of Claim

~~5~~ 42, wherein said functional unit further comprises a ~~that contain~~ material that absorbs radio waves to produce heat for treating an organ with hyperthermia~~, making possible an effective means of adding hyperthermia to the radiation treatment of the target organ~~.

23. (currently amended) The ~~A spacer or other attachment to a connection joint on the~~ implantable brachytherapy source of Claim ~~1~~ 42, wherein said functional unit further comprises an ~~that has~~ expandable petals or barbs~~,~~ whereby ~~which hinder the~~ motion through the site of implantation is hindered~~tissue of the attachment and its attached seeds~~.

24. (currently amended) The implantable brachytherapy source of Claim 42, further comprising a~~A~~ functional unit having one ball joint, wherein said functional unit having one ball joint comprises ~~attached to a capsule of Claim 1 by the socket or universal joint, consisting of~~ a malleable plug ~~forming a seal, if required, or a simple retaining element depending on interference with the interior wall on the needle, so that the seed train will only leave the needle as a result of the force applied by the therapist during the implant procedure. The plug can be made with~~ comprising a plastic foam ~~such that it~~which is readily imaged with ultrasound ~~so the physician can easily detect the first seed leaving the needle~~.

25. (currently amended) ~~A plastic carrier of the radioisotope~~The implantable brachytherapy source of Claim ~~1b~~ 42, wherein said fluid carrier comprises ~~consisting of~~ an epoxy based fluid that is substantially uniformly mixed with the radioisotope to form a carrier fluid that can be jetted through an ink-jet head into ~~the plastic~~said biocompatible capsule, ~~or into a separate mold,~~ where curing is initiated by heating ~~and it is cured in place in the capsule, or in a separate mold~~.

26. (currently amended) The implantable brachytherapy source of Claim 42, wherein said fluid~~plastic carrier of Claim 10 where the~~ carrier ~~is the~~

~~formulation: (percentages are~~comprises, by weight percent~~):~~, about

(1)Radioactive residue 17%,

(2)Triethyleneglycoldivinylether 55%,

(3) Cycloaliphatic epoxide resin 18%,

(4)Borontrifluoride monoethylamine 2%, and

(5)Propylene carbonate 8%

~~To perform the manufacturing method disclosed herein, the radioactive residue is dissolved in components (2) and (3), while component (4) is dissolved in a portion of the solvent (5). All of the liquids are then combined to form the source material. The source material is then jetted in the proper quantity into the volume of the seed shell that it is to occupy, and the source material is then heated to approximately 190°C, to initiate curing~~.

27. (currently amended) The implantable brachytherapy source of Claim 42, wherein said marker is replaced by a ~~A seed with a plastic carrier consisting of the radioisotope co-mingled with enough~~ nonradioactive isotope of said radioactive isotope such that the resulting ~~carrier~~ radioactive seed is visible ~~with fluoroscope~~by magnetic resonance imaging (MRI), fluoroscopy, or x-ray film imaging ~~negating the need for a separate marker, but which remains sufficiently transparent to the curative radiation to be a practical therapeutic device~~.

28. (canceled).

29. (canceled).

30. (canceled).

31. (currently amended) A brachytherapy device for use in radiation treatment of an affected tissue region, the brachytherapy device comprising[[:]] a

functional unit having one or more ball joint elements, and a sealed hollow outside cylindrical capsule having two ends, ~~consisting of~~ said capsule comprising a biocompatible nonabsorbable polymeric matrix and having a socket at each end adapted to be affixed to a ball joint element of said functional unit to form a linear strand or a planar array, and wherein said hollow outside cylindrical capsule surrounds ~~surrounding~~ an inside cylindrical solid radioactive seed ~~composed of~~comprising a marker and a source of therapeutic radiation ~~a radioactive isotope~~ uniformly mixed with and ~~disbursed~~ dispersed throughout ~~a biocompatible nonabsorbable polymeric matrix~~ an epoxy based fluid carrier.

32. (currently amended) ~~A~~ The brachytherapy device of Claim 31, wherein the radioactive isotope is comprised of a powder selected from the group consisting of Pd-103, I-125 ~~or~~and Cs-131.

33. (currently amended) ~~A~~ The brachytherapy device of Claim 31, wherein the biocompatible nonabsorbable polymeric matrix is selected from the group consisting of high density polyethylene, high density polyaryletheretherketone ~~or~~ and medical grade polyaryletheretherketone.

34. (currently amended) ~~A~~ The brachytherapy device of Claim 31, further comprising a radiographically detectible element for locating the brachytherapy device within the body of a patient.

35. (currently amended) ~~A~~ The brachytherapy device of Claim 31 ~~further comprising a concave socket joint configuration disposed at either end of the external surface of the outside capsule so as to accommodate at either end, a biodegradable spacing connector~~, wherein said functional unit ~~comprised of~~having one or more ball joint elements is biodegradable.

36. (currently amended) ~~A~~ The brachytherapy device of Claim 35, wherein ~~the~~ said biodegradable ~~spacing connector is selected from the group of said~~

~~connectors~~functional unit is comprised of one ball joint element, two ball joint elements, three ball joint elements, four ball joint elements or six ball joint elements.

37. (currently amended) A method of making a solid plastic radioactive seed ~~of the brachytherapy device of Claim 31,~~ comprising the steps of:

(a) mixing a ~~radioactive isotope~~source of therapeutic radiation dispersed in ~~a solvent~~an epoxy based fluid carrier, with a marker and a biocompatible nonabsorbable polymeric matrix to form a fluid homogenous radioactive mixture;

(b) injecting said fluid homogenous radioactive mixture through an ink-jet head into ~~a cylindrical mold~~a biocompatible capsule; and

(c) heating ~~the mold~~said biocompatible capsule to cure the fluid homogenous radioactive mixture ~~into a~~to form said solid plastic radioactive ~~cylindrical form~~seed;

~~(d) removing the cured solid radioactive cylindrical form from the mold~~

wherein said source of therapeutic radiation comprises a radioactive isotope selected from the group consisting of Pd-103, I-125, and Cs-131, wherein said biocompatible capsule is made of mechanically strong, biocompatible, plastic material that is transparent to therapeutic radiation, and wherein said biocompatible capsule has a socket at each end adapted to be affixed to one or more ball joints of a functional unit adapted to being assembled to form a linear strand or a planar array comprising a multiplicity of said biocompatible capsule and said functional unit..

38. (canceled).

39. (currently amended) The ~~process~~ method according to Claim ~~38~~37, wherein said marker comprises a radiographically detectible element which is mixed with said radioactive isotope and biocompatible nonabsorbable polymeric matrix of step (a), whereby said radiographically detectible element aids in ~~is inserted for~~ locating the brachytherapy device within the body of a patient

~~before the mold is heated to cure the fluid homogenous radioactive mixture into a solid radioactive cylindrical form~~.

40. (currently amended) The ~~process~~ method according to Claim ~~38~~37, wherein the radioactive isotope is comprised of a powder selected from the group consisting of Pd-103, I-125 ~~or~~ and Cs-131.

41. (currently amended) The ~~process~~ method according to Claim ~~38~~37 wherein the biocompatible nonabsorbable polymeric matrix is selected from the group consisting of high density polyethylene, high density polyaryletheretherketone ~~or~~ and medical grade polyaryletheretherketone.

42. (new) An implantable brachytherapy for use in radiation treatment of an affected tissue region, said implantable brachytherapy source comprising a functional unit having one or more ball joints, and a biocompatible capsule having two ends, said biocompatible capsule having a socket at each end adapted to be affixed to a ball joint of said functional unit to form a linear strand or a planar array, wherein said biocompatible capsule is made of mechanically strong, biocompatible, plastic material that is transparent to therapeutic radiation, and wherein said biocompatible capsule contains therein a radioactive seed comprising:

(a) an epoxy based fluid carrier that is resistant to radiation polymerization in its fluid phase, but can be induced to solidify by raising its temperature;

(b) a marker visible by x-ray, ultrasound, or nuclear magnetic resonance imaging; and

(c) a source of therapeutic radiation comprising a radioactive isotope selected from the group consisting of Pd-103, I-125, and Cs-131;

wherein said radioactive isotope is substantially uniformly mixed in said fluid carrier.